3-P-04 Perspectives on climate change and human development in the Mediterranean agriculture

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The Mediterranean region is one of the world's climate change hotspots. Future climate projections envisage dramatic implications for the agricultural and water sectors that will endanger economic development and lead to natural resources degradation and social instability. This study aims to assess the socio-economic and environmental effects of climate change under different societal and human development scenarios in the water-scarce MENA region. To address the complex interactions of the human and water systems under different scenarios, we have carried out a panel-data based econometric analysis on water use trends and 2040 future projections across sub-regions and individual countries. To cope with water resources variability and a changing social environment, different scenario-based adaption measures have been analyzed for each country. Results on water withdrawals show that climate as well as socio-economic projections in the different scenarios may have clear differential effects across countries in the MENA region and over time. The analysis illustrates that the most sustainable scenarios mitigate water withdrawal in all countries in spite of the increase in water demand due to changes in population, GDP and trade. In all MENA countries, to close the gap between water demand and supply requires a combination of hard and soft adaptation measures. The effectiveness of adaptation measures differs across countries and scenarios being more acute in water-scarce countries (Jor-

dan, Palestine and Israel) where the cost of overcoming climate change effects will be highest. The study also points out that the scenarios where factors such as effective water management, governance and structural change are predominant water resources and social stability are more secured. This type of analysis is key to support current and future water and agricultural policies, and to improve preparedness and adaptation capacity to a changing environmental in water-scarce countries.